

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1-10. (Canceled).

Claim 11. (Previously Amended) The mixture as claimed in Claim 19, wherein R³ is derived from an alcohol selected from the group consisting of cyclohexanol, cyclohexylmethanol, cyclopentanol, cyclopentylmethanol, 3,3,5-trimethylcyclohexanol, menthol, norbornenol, N-methyl-4-hydroxypiperidine, 4-(2-hydroxyethyl)-morpholine and 4-(2-hydroxyethyl)pyrrolidone.

Claim 12. (Previously Amended) The mixture as claimed in Claim 19, wherein the amount of isophorone diisocyanate or hexamethylene diisocyanate remaining in the mixture is less than 0.5 % by weight of the mixture.

Claim 13. (Previously Amended) The mixture as claimed in Claim 19, wherein the sum of the amounts of diisocyanates (Ia), (Ib), (Ic), (V), the urethane (IV) and the monoisocyanurate (VII) ranges from 10 to 100 % by weight, based on the weight of the mixture.

Claim 14. (Previously Amended) A process for preparing the mixture as claimed in Claim 19, which comprises:

reacting

(i) isophorone diisocyanate, hexamethylene diisocyanate or a mixture of these isocyanates in the presence of a catalyst with

(ii) a 5- or 6-membered cycloaliphatic alcohol in which up to three ring carbon atoms are optionally substituted by C₁-C₄-alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups, or

a C₁-C₄-alkyl alcohol in which one hydrogen atom is substituted by a 5- or 6-membered cycloalkyl radical in which up to three ring carbon atoms are optionally substituted by C₁-C₄-alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups; or

a C₁-C₄-alkyl alcohol substituted by a pyrrolidone radical or a morpholine radical, wherein the nitrogen containing heterocyclic structures are attached to the alkyl radical by the nitrogen atom of each ring system, the molar ratio of the isocyanates to the monoalcohol ranging from 1.5:1 to ~~20:1~~ 6.7:1;

(ii) deactivating the catalyst; and

(iii) removing unreacted isocyanate.

Claim 15. (Previously Added) The process as claimed in Claim 14, wherein the reaction is continued until the resulting reaction product after removal of unreacted isophorone diisocyanate or hexamethylene diisocyanate still present has a viscosity ranging from 100 to 10,000 mPas as measured at 25° C and determined by the procedure of ISO 3219, Annex B.

Claim 16. (Previously Amended) A two-component coating composition, comprising:
a compound which carries polyisocyanate-reactive groups (component (A)) and the mixture as claimed in Claim 19 (component (B)).

Claim 17. (Previously Added) A method of coating articles, which comprises:

(i) preparing a coating composition as claimed in Claim 16 by mixing components (A) and (B); and

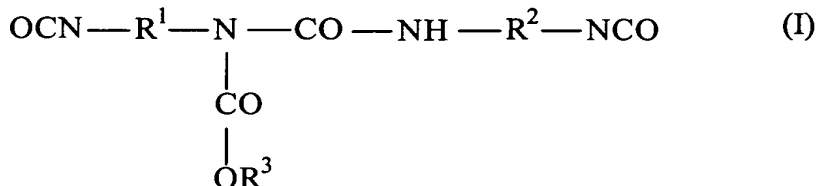
(ii) applying the composition obtained as a coating on an article within 12 hours of the preparation of the composition.

Claim 18. (Previously Added) A coated article prepared by the method of Claim 17.

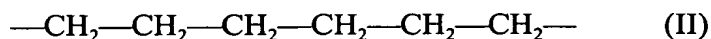
Claim 19. (Currently Amended) A mixture, comprising:

i) from 5 to 100 % by weight of a diisocyanate component of formula Ia, Ib, Ic or combinations of diisocyanates of one or more of these three formulas, wherein

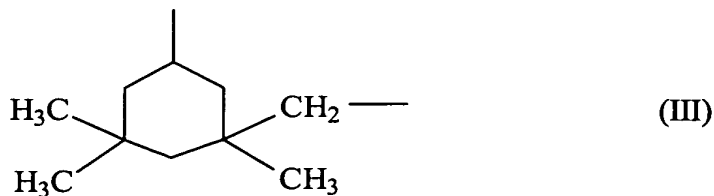
diisocyanate of formula (Ia) is:



wherein each of R^1 and R^2 has formula (II):



diisocyanate of formula (Ib) wherein, in formula (I), one of R^1 or R^2 has formula (II) and the other radical has formula (III):



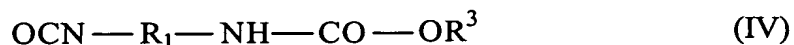
diisocyanate of formula (Ic) wherein, in formula (I), each of R¹ and R² has formula (III);

R³ is a 5- or 6-membered cycloalkyl radical in which up to three hydrogen atoms are optionally substituted by C₁-C₄-alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups;

a C₁-C₄-alkyl radical in which one hydrogen atom of the alkyl radical is substituted by a 5- or 6-membered cycloalkyl radical in which up to three hydrogen atoms are optionally substituted by C₁-C₄-alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups; or

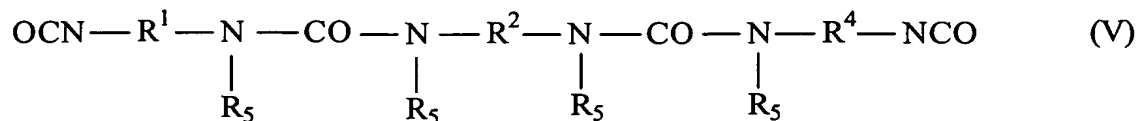
a C₁-C₄-alkyl radical substituted by a pyrrolidone radical or a morpholine radical wherein the site of attachment of the pyrrolidone radical or the morpholine radical to the alkyl group is through the nitrogen atom of the ring system of the two cyclic groups, the diisocyanate component having been prepared by the reaction of isophorone diisocyanate, hexamethylene diisocyanate or a mixture thereof with a monoalcohol which determines substituent R³ in a molar ratio of the reacting diisocyanate to monoalcohol ranging from 1.5:1 to ~~20:1~~ 6.7:1;

ii) from 0 to 20% by weight of (ii) a urethane of formula (IV):

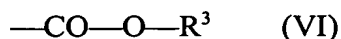


wherein R¹ has formula (II) or (III) above and R³ is as defined above;

iii) from 0 to 30% by weight of (iii) a diisocyanate of formula (V):



wherein R^1 , R^2 and R^4 each have the meaning for group R^1 in formula (I), and wherein, of the four R^5 groups, two are hydrogen and the remaining two groups have formula (VI):



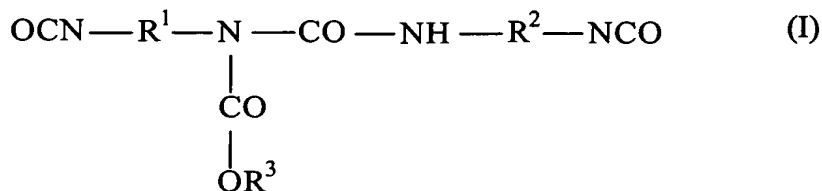
wherein R^3 is as defined above; and

iv) from 0 to 65% by weight of (iv) a monoisocyanurate (VII) prepared from isophorone diisocyanate or hexamethylene diisocyanate, wherein the percent amounts of (i), (ii) and (iii) and (iv) are based on the weight of the mixture.

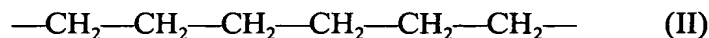
Claim 20. (Previously Added) The mixture as claimed in Claim 19, wherein the weight ratio of diisocyanate (I) to monoisocyanurate (VII) ranges from 10:1 to 1:10.

Claim 21. (Currently Amended) A mixture, comprising:

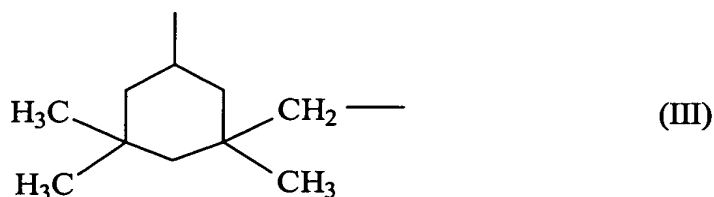
i) from 5 to 100 % by weight of a diisocyanate component of formula Ia, Ib, Ic or combinations of diisocyanates of one or more of these three formulas, wherein diisocyanate of formula (Ia) is:



wherein each of R^1 and R^2 has formula (II):



diisocyanate of formula (Ib) wherein, in formula (I), one of R^1 or R^2 has formula (II) and the other radical has formula (III):



diisocyanate of formula (Ic) wherein, in formula (I), each of R^1 and R^2 has formula (III);

R^3 is a 5- or 6-membered cycloalkyl radical in which up to three hydrogen atoms are optionally substituted by $\text{C}_1\text{-C}_4$ -alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two $\text{C}_1\text{-C}_4$ -alkyl groups;

a $\text{C}_1\text{-C}_4$ -alkyl radical in which one hydrogen atom of the alkyl radical is substituted by a 5- or 6-membered cycloalkyl radical in which up to three hydrogen atoms are optionally substituted by $\text{C}_1\text{-C}_4$ -alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two $\text{C}_1\text{-C}_4$ -alkyl groups; or

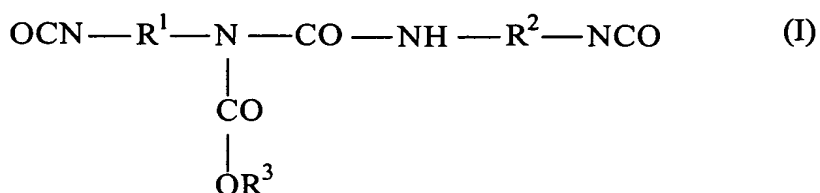
a $\text{C}_1\text{-C}_4$ -alkyl radical substituted by a pyrrolidone radical or a morpholine radical wherein the site of attachment of the pyrrolidone radical or the morpholine radical to the alkyl group is through the nitrogen atom of the ring system of the two cyclic groups, the diisocyanate

component having been prepared by the reaction of isophorone diisocyanate, hexamethylene diisocyanate or a mixture thereof with a monoalcohol which determines substituent R^3 in a molar ratio of the reacting diisocyanate to monoalcohol ranging from 1.5:1 to ~~20:1~~ 6.7:1;

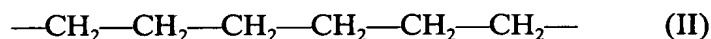
Claim 22. (Newly Added) A mixture, comprising:

i) from 5 to 100 % by weight of a diisocyanate component of formula Ia, Ib, Ic or combinations of diisocyanates of one or more of these three formulas, wherein

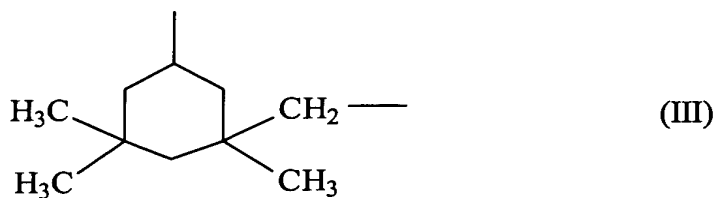
diisocyanate of formula (Ia) is:



wherein each of R^1 and R^2 has formula (II):



diisocyanate of formula (Ib) wherein, in formula (I), one of R^1 or R^2 has formula (II) and the other radical has formula (III):



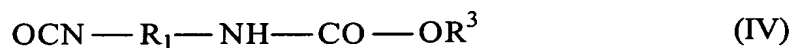
diisocyanate of formula (Ic) wherein, in formula (I), each of R^1 and R^2 has formula (III); R^3 is a 5- membered cycloalkyl radical in which up to three hydrogen atoms are

optionally substituted by C₁-C₄-alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups or a 6-membered cycloalkyl radical in which three hydrogen atoms are substituted by C₁-C₄-alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups;

a C₁-C₄-alkyl radical in which one hydrogen atom of the alkyl radical is substituted by a 5- or 6-membered cycloalkyl radical in which up to three hydrogen atoms are optionally substituted by C₁-C₄-alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups; or

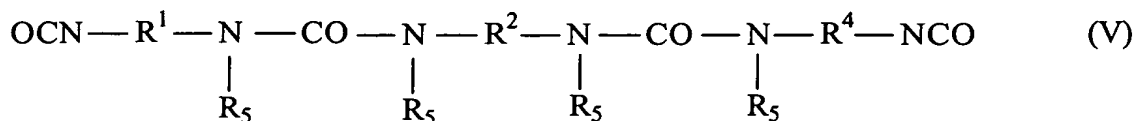
a C₁-C₄-alkyl radical substituted by a pyrrolidone radical or a morpholine radical wherein the site of attachment of the pyrrolidone radical or the morpholine radical to the alkyl group is through the nitrogen atom of the ring system of the two cyclic groups, the diisocyanate component having been prepared by the reaction of isophorone diisocyanate, hexamethylene diisocyanate or a mixture thereof with a monoalcohol which determines substituent R³ in a molar ratio of the reacting diisocyanate to monoalcohol ranging from 1.5:1 to 20:1;

ii) from 0 to 20% by weight of (ii) a urethane of formula (IV):



wherein R¹ has formula (II) or (III) above and R³ is as defined above;

iii) from 0 to 30% by weight of (iii) a diisocyanate of formula (V):



wherein R^1 , R^2 and R^4 each have the meaning for group R^1 in formula (I), and wherein, of the four R^5 groups, two are hydrogen and the remaining two groups have formula (VI):



wherein R^3 is as defined above; and

iv) from 0 to 65% by weight of (iv) a monoisocyanurate (VII) prepared from isophorone diisocyanate or hexamethylene diisocyanate, wherein the percent amounts of (i), (ii) and (iii) and (iv) are based on the weight of the mixture.

Claim 23. (Newly Added) The mixture as claimed in Claim 22, wherein R^3 is derived from an alcohol selected from the group consisting of cyclohexylmethanol, cyclopentanol, cyclopentylmethanol, 3,3,5-trimethylcyclohexanol, menthol, norbornenol, N-methyl-4-hydroxypiperidine, 4-(2-hydroxyethyl)-morpholine and 4-(2-hydroxyethyl)pyrrolidone.

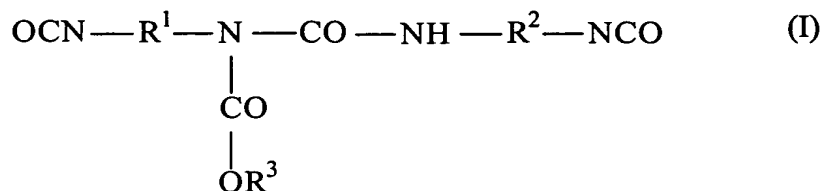
Claim 24. (Newly Added) The mixture as claimed in Claim 22, wherein the amount of isophorone diisocyanate or hexamethylene diisocyanate remaining in the mixture is less than 0.5 % by weight of the mixture.

Claim 25. (Newly Added) The mixture as claimed in Claim 22, wherein the sum of the amounts of diisocyanates (Ia), (Ib), (Ic), (V), the urethane (IV) and the monoisocyanurate (VII) ranges from 10 to 100 % by weight, based on the weight of the mixture.

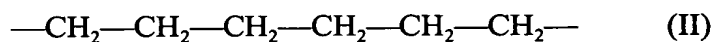
Claim 26. (Newly Added) A mixture, comprising:

i) from 5 to 100 % by weight of a diisocyanate component of formula Ia, Ib, Ic or combinations of diisocyanates of one or more of these three formulas, wherein

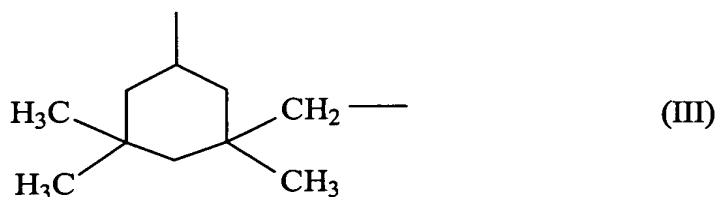
diisocyanate of formula (Ia) is:



wherein each of R^1 and R^2 has formula (II):



diisocyanate of formula (Ib) wherein, in formula (I), one of R^1 or R^2 has formula (II) and the other radical has formula (III):



diisocyanate of formula (Ic) wherein, in formula (I), each of R^1 and R^2 has formula (III);

R^3 is a 5- membered cycloalkyl radical in which up to three hydrogen atoms are optionally substituted by C_1 - C_4 -alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two C_1 - C_4 -alkyl groups or a 6-membered cycloalkyl radical in which three hydrogen atoms are substituted by C_1 - C_4 -alkyl groups and one or two ring carbon

atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups;

a C₁-C₄-alkyl radical in which one hydrogen atom of the alkyl radical is substituted by a 5- or 6-membered cycloalkyl radical in which up to three hydrogen atoms are optionally substituted by C₁-C₄-alkyl groups and one or two ring carbon atoms are optionally substituted by direct attachment of oxygen of an oxygen-containing functional group or a tertiary nitrogen atom substituted by two C₁-C₄-alkyl groups; or

a C₁-C₄-alkyl radical substituted by a pyrrolidone radical or a morpholine radical wherein the site of attachment of the pyrrolidone radical or the morpholine radical to the alkyl group is through the nitrogen atom of the ring system of the two cyclic groups, the diisocyanate component having been prepared by the reaction of isophorone diisocyanate, hexamethylene diisocyanate or a mixture thereof with a monoalcohol which determines substituent R³ in a molar ratio of the reacting diisocyanate to monoalcohol ranging from 1.5:1 to 20:1.